WE CLAIM:

1. A system for measuring temperatures of a device, comprising:

a dual diode system that is formed on a first substrate and that has a first terminal that is coupled to a first electrode of a first junction diode, wherein the first electrode of the first junction diode has a first polarity, a second terminal that is coupled to a first electrode of a second junction diode, wherein the first electrode of the second junction diode has the first polarity, and a third terminal that is coupled to second electrodes of the first and second junction diodes, wherein the second electrodes of the first and second junction diodes have a second polarity that is opposite of the first polarity;

a temperature measurement circuit that is formed on a second substrate and that is configured to perform a voltage measurement using at least one of the first and second terminals; and

a bias circuit that is configured to bias the third terminal.

2. The system of claim 1, wherein the first electrode of the first junction diode comprises an emitter, the first electrode of the second junction diode comprises an emitter, and the second electrodes of the first and second junction diodes each comprise a base.

3. The system of claim 1, wherein the first electrode of the first junction diode comprises a cathode, the first electrode of the second junction diode comprises a cathode, and the second electrodes of the first and second junction diodes each comprise an anode.

4. The system of claim 1, wherein the bias circuit is formed on the first substrate.

5. The system of claim 1, wherein the bias circuit is formed on one of the second substrate, a third substrate, and a discrete component.

6. The system of claim 1, wherein the temperature measurement circuit is configured to perform a voltage measurement using the third terminal.

7. The system of claim 1, wherein the temperature measurement circuit comprises a differential analog-to-digital converter.

8. A method for measuring the temperature of a device, comprising:

forming a dual diode system on a first substrate wherein the dual diode system comprises a first terminal that is coupled to a first electrode of a first junction diode, wherein the first electrode of the first junction diode has a first polarity, a second terminal that is coupled to a first electrode of a second junction diode, wherein the first electrode of the second junction diode has the first polarity, and a third terminal that is coupled to second electrodes of the first and second junction diodes, wherein the second electrodes of the first and second junction diodes have a second polarity that is opposite of the first polarity;

forming a temperature measurement circuit on a second substrate;

performing a voltage measurement using at least one of the first and second terminals, wherein the voltage measurement is performed using the temperature measurement circuit; and

biasing the third terminal.

9. The method of claim 8, wherein the first electrode of the first junction diode comprises an emitter, the first electrode of the second junction diode comprises an emitter, and the second electrodes of the first and second junction diodes each comprise a base.

10. The method of claim 8, wherein the first electrode of the first junction diode comprises a cathode, the first electrode of the second junction diode comprises a cathode, and the second electrodes of the first and second junctions diode each comprise an anode.

11. The method of claim 8, wherein the biasing the third terminal is performed using a bias circuit that is formed on the first substrate.

12. The method of claim 8, wherein the bias circuit is formed on one of the second substrate, a third substrate, and a discrete component.

13. The method of claim 8, wherein the temperature measurement circuit is configured to perform a voltage measurement using both of the first and second terminals.

14. The method of claim 8, wherein the temperature measurement circuit comprises a differential analog-to-digital converter.

15. A system for measuring the temperature of a device, comprising:

a dual diode system on a first substrate wherein the dual diode system comprises a first terminal that is coupled to a first electrode of a first junction diode means, wherein the first electrode of the first junction diode means has a first polarity, a second terminal that is coupled to a first electrode of a second junction diode means, wherein the first electrode of the second junction diode means has the first polarity, and a third terminal that is coupled to second electrodes of the first and second junction diode means, wherein the second electrodes of the first and second junction diode means have a second polarity that is opposite of the first polarity;

forming a means for measuring a signal on a second substrate;

means for performing a voltage measurement using at least one of the first and second terminals, wherein the voltage measurement is performed using the signal measuring means; and

means for biasing the third terminal.

16. The method of claim 15, wherein the first electrode of the first junction diode means comprises an emitter, the first electrode of the second junction diode means

comprises an emitter, and the second electrodes of the first and second junction diode means each comprise a base.

17. The method of claim 15, wherein the first electrode of the first junction diode means comprises a cathode, the first electrode of the second junction diode means comprises a cathode, and the second electrodes of the first and second junctions diode means each comprise an anode.

18. The method of claim 15, wherein the means for biasing the third terminal comprises a bias circuit that is formed on the first substrate.

19. The method of claim 15, wherein the bias circuit is formed on one of the second substrate, a third substrate, and a discrete component.

20. The method of claim 15, wherein the signal measuring means is configured to perform a voltage measurement using both of the first and second terminals.